

We claim:

1. Device for manufacturing containers, made of a thermoplastic by blow molding or stretch-blow molding of a preheated preform, the said device including at least one mold (1) consisting of two half-molds (2) respectively supported by two mold carriers (3) which are made in the form of enveloping structures and which can move one with respect to the other, characterized in that each half-mold (2) comprises a shell holder (9) supported by the respective mold carrier (3) and a shell (7) which is provided with a half-impression (8) of the container to be obtained and which can be removably fastened to its shell holder (9) by quick-fixing means (19-23), the shell (7) and the shell holder (9) being in complementary shapes in order to be in at least partial mutual thermal-conduction contact while the

pipes and connections for the circulation of cooling and/or heating fluids (11, 12) are provided exclusively in the shell holder.

2. Device according to claim 1, characterized in that the mating faces (14, 15) of the shell (7) and of the shell holder (9) are in total thermal-conduction contact.

3. Device according to claim 1, characterized in that the mating faces (14, 15) of the shell (7) and of the shell holder (9) are in partial thermal-conduction contact by leaving regions of limited thermal conduction.

4. Device according to claim 1, characterized in that the mutually contacting mating faces (14, 15) of the shell (7) and of the shell holder (9) are approximately semicylindrical surfaces of revolution with an axis approximately parallel to the axis of the impression (8) of the container to be manufactured.

5. Device according to claim 1, characterized in that the mutually contacting mating faces (14, 15) of the shell and of the shell holder are provided with axial mutual-positioning means (16, 17).

6. Device according to claim 5, characterized in that the axial mutual-positioning means comprise a system of one or more mating ribs (16) and grooves (17) extending circumferentially.

7. Device according to claim 1, characterized in that the means (19-23) for quickly fixing the shell (7) to the shell holder (9) are provided on their respective parting faces (13, 18).

8. Device according to Claim 4, characterized in that the means (19-23) for quickly fixing the shell and the shell holder are located on their respective edges parallel to the axis of the impression.

9. Device according to claim 8, characterized in that the quick-fixing means (19-23) comprise, on one side, at least one stop for positioning the parting face of the shell with respect to the parting face of the shell holder and, on the other side, quick-screwing means (23) on the parting face (18) of the shell holder (9) with a clamping surface (21) projecting from the parting face (19) of the shell.

10. Device according to claim 9, in which the mold carriers are rotationally pivoted with respect to each other whereby at least one stop is located on the pivot (4) side of the mold carriers (3) and the quick-screwing means are located on the opposite side.

11. Device according to claim 1, characterized in that the shell holder (9) is also provided with members (24) for guiding the half-molds in order to close the mold.

12. Device according to claim 1, characterized in that at least one of the shell holders is equipped with pressure-compensating means suitable for maintaining the sealed closure of the mold during blow molding.

13. Device according to claim 1, characterized in that the shell holders (9) are equipped with a number of fluid pipes, by virtue of which it is possible to create suitable circuits for a given manufacture with a given impression.

14. Device according to claim 1, wherein said containers are bottles.

15. A mold assembly for use in manufacturing molded thermoplastic containers comprising:

two mold shells each containing a half-impression of a substantial portion of the container to be molded;

two mold shell holders each defining a cavity for receiving each said respective mold shell such that each said respective mold shell is in at least partial mutual thermal-conduction contact with its respective shell holder, said shell holders being shaped to be supported by two mold carriers made in the form of enveloping structures movable one with respect to the other and

at least one quick-fixing locking member by which at least one of said mold shells is removably secured to a respective one of said mold shell holders, said one quick-fixing locking member including a selectively retractable locking member portion.

16. The mold assembly of Claim 15, further comprising at least one axial positioning assembly by which said mold shells are fixed in an axial direction with respect to said mold shell holders.

17. The mold assembly of Claim 16, wherein said axial positioning assembly comprises at least one meshing coupling member disposed on at least one of said mold shells and mold shell holders, and at least one complementary meshing coupling member disposed on at least one of said mold shells and mold shell holders.

18. The mold assembly of Claim 15, wherein said mold shell holders further comprise a number of internal fluid pipes and connections for the circulation of cooling and/or heating fluids.

19. The mold assembly of Claim 15, wherein at least one of said mold shells and/or mold shell holders define at least one cavity at the interface between said mold shells and mold shell holders into which pressurized fluid suitable for maintaining the sealed closures of the mold assembly may be interposed during the molding process.

20. The mold assembly of Claim 17, wherein said meshing coupling members further comprise a system of one or more mating ribs and grooves in said mold shells and mold shell holders.

21. The mold assembly of Claim 15, wherein said quick-fixing locking member comprises, on one side, at least one stop for positioning the parting face of said mold shell with respect to said mold shell holder and, on the other side, at least one quick-acting screw on the parting face of said mold shell holder with at least one clamping surface projecting from the parting face of said mold shell.

22. The mold assembly as claimed in Claim 15, wherein said quick-fixing locking member is configured to include a portion which remains engaged with said mold shell holder when said quick fixing locking member is moved out of said locking position.

23. A mold assembly for use in manufacturing molded thermoplastic containers comprising:

two mold shells each containing a half-impression of a substantial portion of the container to be molded;

two mold shell holders each defining a cavity for receiving each said respective mold shell such that each said respective mold shell is in at least partial mutual thermal-conduction contact with its respective shell holder, said shell holders being shaped to be

supported by two mold carriers made in the form of enveloping structures movable one with respect to the other; and

at least one quick-fixing locking member by which at least one of said mold shells is removably secured to a respective one of said mold shell holders, said quick-fixing locking member itself including a retractable locking member portion which can be selectively extended and retracted such that when extended, said retractable locking member portion provides at least partial securement of said one of said mold shells relative to said corresponding mold shell holder, and when retracted, said retractable locking member portion does not provide securement of said one said mold shells relative to said corresponding mold shell holder.

24 ~~36~~. A mold assembly for use in manufacturing molded thermoplastic containers comprising:

two mold shells each containing a half-impresion of a substantial portion of the container to be molded;

two mold shell holders each defining a cavity for receiving each said respective mold shell such that each said respective mold shell is in at least partial mutual thermal-conduction contact with its respective shell holder, said shell holders being shaped to be supported by two mold carriers made in the form of enveloping structures movable one with respect to the other, and

at least one quick-fixing locking member by which at least one of said mold shells is removably secured to a respective one of said mold shell holders, said one quick-fixing locking member including a selectively movable locking member portion which can be selectively moved into and out of a locking position which at least partially locks said one of said mold shells to said respective mold shell holder, and said quick-fixing locking member is configured to include a portion which remains engaged with said mold shell holder when said quick fixing locking member is moved out of said locking position.

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25 ~~37~~. The mold assembly as claimed in Claim ~~36~~, wherein said quick-fixing locking member comprises the following portions:

a fastener portion; and

said selectively movable locking member portion,

said fastener portion and said selectively movable locking member portion being separate but configured to interact such that said fastener portion remains engaged with said mold shell holder when said locking member portion is moved out of said locking position.

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26 ~~38~~. The mold assembly as claimed in Claim ~~37~~, wherein said fastener portion is threadably engaged with said mold shell holder through a threaded connection that can be partially loosened without disengagement to allow said locking member portion to be moved out of said locking position.

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39. A mold assembly for use in manufacturing molded thermoplastic containers comprising:
two mold shells each containing a half-impression of a substantial portion of the container to be molded;
two mold shell holders each defining a cavity for receiving each said respective mold shell such that each said respective mold shell is in at least partial mutual thermal-conduction contact with its respective shell holder, said shell holders being shaped to be supported by two mold carriers made in the form of enveloping structures/movable one with respect to the other; and
at least one quick-fixing, slidable lock by which at least one of said mold shells is removably secured to a respective one of said mold shell holders, said slidable lock being slidable into and out of a locking position which at least partially locks said one of said mold shells relative to said respective mold shell holder.

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28 40. The mold assembly as claimed in Claim 39, wherein said quick-fixing, slidable lock is configured to include a portion which remains engaged with said mold shell holder when another portion of said quick fixing locking member is moved out of said locking position.